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| 10/026,938 | 12/27/2001 | Hiroki Takeuchi | 046103-5011 | 7305 |

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EXAMINER

SELLERS, ROBERT E

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| ART UNIT | PAPER NUMBER |
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1712

DATE MAILED: 08/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/026,938

Applicant(s)

TAKEUCHI ET AL.

Examiner

Robert Sellers

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 4 and 6-11 and 15-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/11/2002</u> . | 6) <input type="checkbox"/> Other: _____ |

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3, 4, 6-11 and 15-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

1. The phrase "selected from among" denoted in claims 1, 3, 4, 6, 8 and 17 is improper Markush language and should be modified to the accepted "selected from the group consisting of."
2. The term "type" used to characterize the species of epoxy resins in claim 3 does not provide a concise definition of the species since the term embraces modifications and/or derivatives not contemplated. The term should be deleted.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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3. Claims 1, 3, 4, 6-11 and 15-18 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 and 10 of U.S. Patent No. 6,680,123. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the patent sets forth an embedding resin assuming a color of black, blue, green, red, orange, yellow and violet containing a thermosetting resin (claim 3) such as a bisphenol epoxy resin (claim 6), 1.4% by mass or less of carbon black (claim 2) and an inorganic filler having a particle size of from about 0.1 to 50 μm .

4. Claims 1, 3, 4, 6-11 and 15-18 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 3-6 of U.S. Patent No. 6,822,170. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the patent denote an embedding resin prepared from a thermosetting resin (claim 5) such as a bisphenol epoxy resin (claim 6), not more than 0.5% by mass of carbon black (claim 3) and an inorganic filler.

5. The claimed particle size of from about 0.1 to 50 μm is not claimed. Column 10, Table 1, lines 61-64 shows a silane coupling agent-treated spherical silica filler (FB-5SDX). Column 3, lines 48-59 discloses a particle size of from 0.1 to 50 μm . Although the claims of the patent do not mention the type of filler or the particle size, the description indicates that such claimed parameters are clearly within the purview of the patent.

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6. Claims 1, 3, 4, 6-11 and 15-18 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of U.S. Patent No. 6,876,091. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the patent are directed to a wiring board containing an embedding resin having a color of black, blue, green, red, orange, yellow or violet (claim 5) obtained from a thermosetting resin (claim 3) such as a bisphenol epoxy resin (claim 4), at most 1.4 mass% of carbon black (claim 2) and an inorganic filler.

7. The claimed particle size of inorganic filler is not defined. Column 12, Table 1, lines 60-63 shows a silane-coupled filler with a particle size of 24 μm (TSS-6). Column 6, lines 25-26 indicates that a spherical silica filler is preferred and easily available. Although the claims of the patent do not mention the type of filler or the particle size, the description indicates that such claimed parameters are clearly within the purview of the patent.

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Claims 1, 3, 4, 6-8, 10, 11 and 15-18 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5 of U.S. Patent No. 6,586,827. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the patent are drawn to a wiring board comprising an embedding resin having a base color tone imparted by at most 1.4 mass% of carbon black, a thermosetting resin such as a bisphenol epoxy resin (claim 3) and an inorganic filler such as silica (claim 4) having a particle size of from 0.1-50 μm .

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 4, 6-8, 10, 11 and 15-18 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Nos. 6,680,123; 6,822,170 or 6,876,091.

8. Each of the claimed features are found in the claims and examples of the patents as espoused in previous paragraphs 3-7.

Claims 1, 4, 6-8, 10, 11 and 15-17 are rejected under 35 U.S.C. 102(a) as being anticipated by Hasegawa et al. Patent No. 6,275,246.

9. Hasegawa et al. (col. 5, line 63 to col. 6, line 11 and Table 1) shows a sealing formulation for integrated circuits on a ceramic substrate prepared from an epoxy resin, 0.45% by weight of carbon black dye (calculated from Table 1) and silica filler having a particle size of 10 μm .

Claims 1, 3, 4, 6-8, 10, 11 and 15-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent Nos. 8-53604 or 2000-191884.

10. Japanese '604 (abstracts) sets forth a black semiconductor sealant produced from a cresol-novolac epoxy resin (page 3, paragraph 10, Example 1), from 0.05-1.0 wt.% of carbon black and crystalline (page 3, paragraph 9, line 2) or fused silica having a particle size of 20 μm (page 3, Example 1, line 5).

11. Japanese '884 (abstracts) reports a semiconductor sealant prepared from an epoxy resin such as a bisphenol A epoxy resin (translation, page 2, paragraph 6, line 4), from 0.01-0.15 wt.% of carbon black and crystalline (page 2, paragraph 8, line 1) or fused silica with a mean particle size of 14 μm (page 4, paragraph 13, Example 1, line 3).

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Claims 1, 3 and 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirano et al. Patent No. 6,120,858.

12. Hirano et al. (col. 2, lines 20-24) discloses a black sealant derived from the elected species of bisphenol A epoxy resin (col. 12, Example 1), between 10 and 70% by weight of titanium black pigment and an inorganic filler such as the elected species of crystalline silica (col. 9, lines 20-21) having a particle size of 4 μm or less (col. 9, lines 18-21 and 39-41). A coupling agent is disclosed in column 8, line 65 to column 9, line 3.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 6, 9-11 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirano et al.

13. Hirano et al. is described in previous paragraph 10. The coloring agents of claims 4 and 6 including the carbon black of claims 15-18 are disclosed but not exemplified. Hirano et al. acknowledges the further inclusion of another pigment with the titanium black such as carbon black (col. 8, line 59). It would have been obvious to blend the titanium black with the carbon black in a proportion within the range of between 10 and 70% by weight in order to improve the optical properties (col. 8, lines 36-38).

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Claims 1, 3, 4, 6-11 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cui Patent No. 6,274,650; Kawata et al. Patent No. 5,567,990 and Japanese Patent Nos. 62-176151, 63-202621 and 7-161878; all in view of Hasegawa et al.

14. Cui (col. 2, lines 38-41 and 49-52) discloses an electronics encapsulant containing a bisphenol A epoxy resin, from 0.1-5 wt.% of carbon black coloring agent and an inorganic filler such as fused silica treated with a silane (col. 5, lines 10-13 and 18-35).

15. Kawata et al. (cols. 5-6, Table 1) shows a semiconductor encapsulant obtained from a biphenyl epoxy resin, 0.2 wt.% of carbon black (calculated from Table 1, Example 1) and fused silica. Kawata et al. is not applicable to claim 3 limited to species of epoxy resin other than the biphenyl epoxy resin.

16. Japanese '151 (abstracts) espouses a semiconductor sealant composed of an epoxy resin, from 0.1-10 wt.% of carbon black and silica filler.

17. Japanese '621 (abstracts) discloses a semiconductor sealant obtained from an epoxy resin, 0.5 wt.% of carbon black and a silane-treated crystalline silica.

18. Japanese '878 (abstracts) is directed to a semiconductor sealant prepared from an epoxy resin such as a bisphenol epoxy resin (page 2, line 2), from 0.2-1.0 wt.% of carbon black, from 0.2-1.0 wt.% of blue colorant and fused silica filler (translation, page 3, paragraph 12, Example 1, line 4).

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19. Cui, Kawata et al. and Japanese '151, '621 and '878 do not recite the claimed particle size of silica filler. Hasegawa et al. is previously described in paragraph 9. Column 2, lines 32-58 discusses the advantages of employ a filler such as silica with a particle size of less than 10 μm . It would have been obvious to employ the silica fillers of Cui, Kawata et al. as well as Japanese '151, '621 and '878 at the particle size of less than 10 μm taught by Hasegawa et al. in order to decrease the stress acting on each of the filler grains (col. 2, lines 45-48) leading to a diminution of filler pressure on the drive integrated circuits during shrinkage with hardening (col. 2, lines 49-52).


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

20. Kawano et al. Patent No. 6,265,784 teaches the prevention of the exposure of visible rays on an LSI chip by coloring a sealing epoxy resin in black (col. 3, lines 35-40 and col. 6, line 53-55) which is the objective of the claimed embedding resin according to page 3, paragraph 7 of the specification.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Sellers whose telephone number is (571) 272-1093. The examiner can normally be reached on Monday to Friday from 9:30 to 6:00. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).

rs 8/9/2005



ROBERT E.L. SELLERS
PRIMARY EXAMINER